Study of The Electrical Properties of Vegetable Oils As An Alternative To Mineral Insulating Oils

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Abstract

Some vegetable oils have electrical and thermal properties similar or better than those of current dielectric fluids with superior environmental performance. In transformers, a stable liquid, inert, having good electrical and thermal properties is required, and at the outside, this liquid must be non - toxic to the environment and readily biodegradable. The intrinsic properties of natur al vegetable oils in terms of fire resistance, environmental performance and electrical and thermal characteristics, dielectric compositions are particularly useful products in the field of electrical engineering [1]. In this work, we report measurements o f the electrical resistivity and the viscosity of castor oil and Palm . The use of this electrical approach has been made between 20 and 140 ° C. These electrical measurements showed that the resistivity decreases as the temperature increases. The decrease of the electrical resistivity and the viscosity was attributed to the effect of the thermal agitation of molecules on the structure of these oils. This study may be useful for a possible application of these oils in the technological field

Key words:
electrical resistivity, viscosity, transformer dielectric.